REMARKS

Claims 1-22 are pending in the current application. Applicant has amended claims 10, 11 and 18. In addition, Applicant has amended paragraphs [0003], [0024], [0025], [0027], and [0028] within the specification to correct minor typographical errors, again not for reasons related to patentability. Reexamination and reconsideration of all claims, as amended, are respectfully requested.

Informalities

Applicant has amended paragraphs [0003], [0024], [0025], [0027], and [0028] to correct minor informal typographical errors and not for reasons related to patentability. Applicant appreciates the Examiner identifying these clerical inaccuracies so that they could be addressed.

§ 112

The Office Action rejected claim 10 under 35 U.S.C. §112, second paragraph, based on the limitation "seed value" in line 1. Applicant has amended claim 10 to correct the reference to the claim from which claim 10 depends. Accordingly, it is respectfully submitted that all pending claims, as amended, fully comply with 35 U.S.C. § 112.

§ 103

The Office Action rejected claims 1, 5, 11, and 18 under 35 U.S.C. § 103(a) based on Moroney in view of Bloomberg et al. U.S. Patent 5,619,592 ("Bloomberg") and Kikuchi et al., U.S. Patent 6,064,776 ("Kikuchi").

With respect to claim 1, Applicant submits that the Office Action uses hindsight to pick and choose wording from certain references to reconstruct the claim,

which is improper. Applicant further contends that no motivation to combine the three references is presented in the references themselves. With respect to claims 11 and 18, Applicant has amended claims 11 and 18 to include the chromatic component of the digital image and the aspect of enhancing tone reproduction of gray-scale component utilizing at least said image mask *calculated from the gray-scale component and the chromatic component,* a feature completely missing from the references presented.

Claim 1

The Office Action relies on the combination of Moroney, Bloomberg, and Kikuchi to reject the claim. Applicant submits that while the three references discuss image processing, they do not address nor solve, either individually nor collectively, the problem addressed by Applicant, namely the halo effect that results at high grayscale gradient regions when a blurred image mask produces a partially reversed band along the edges of the image.

At a simple level, Bloomberg deals with text documents and optical character recognition rather than digital images such as photographs, and does not mention the "halo effect." Moroney is not specifically limited to, and thus does not present a solution for, processing of greyscale components, such as those that can result in the "halo effect," but does mention low pass filtering of digital images such as photographs. Kikuchi addresses digital compression of images, and also does not mention nor address the "halo effect," but instead seeks to address something termed the "mosquito noise" effect. The three references address widely different problems in the general field of "image processing," and the combination of the teachings of these references, if such a combination could be performed, would vastly differ from the claims of Applicant.

Moroney presents a local *color* correction design using non-linear masking, and as noted in the present application, "at high grayscale gradient regions, the blurred image mask produces a partially reversed band along the edges. This band becomes noticeable when one or both sides of the edge are large and smooth regions

and, hence, gives rise to the halo effect," an effect neither discussed nor addressed in the Moroney reference. Application, pp. 1-2.

Bloomberg does not address the halo effect, but instead discusses use of morphological operations in connection with text documents and OCR techniques, wherein the morphological operations are employed "to separate highlighted and non-highlighted portions of the [text] document." Abstract. Bloomberg does not discuss producing an image mask or performing low pass filtering under control of segmentation. Further, and most notably, Bloomberg does not discuss operations using greyscale components of the digital image.

The actual claim 1 limitation rejected in the Office Action based on Bloomberg is "morphologically filtering *said grayscale component* to produce a segmentation result." While Bloomberg discusses "applying morphological operations to pixels of the image to obtain segment data," Bloomberg does not specifically address nor limit application to greyscale components as expressly required by the language of Claim 1. Thus the difference between this limitation and Bloomberg, namely greyscale filtering of components, is sufficient to differentiate over the cited references and render the claim allowable. In short, no reference presented specifically includes morphologically filtering a greyscale component of a digital image.

The Kikuchi reference performs image processing using a segmentation unit to divide a decoded picture signal into a plurality of segments, checks for a density change for pixels in a block, and produces a "controlled value" S, representing a range between the maximum and minimum "P" (apparently luminance), to a filter controller "to suppress mosquito noise." Abstract and Col. 18, ll. 15-62. Kikuchi does not suggest using morphological functions, nor non-linear image mask development using grey scale component low pas filtering. Applicant contends that the most that can be said of the cited passages in Kikuchi is that the filtering process is performed corresponding to a control signal. Applicants contend, first, that the limitations presented in claim 1 are neither disclosed nor suggested by Kikuchi, and second, that

combining the filtering aspects of Kikuchi with the Bloomberg and Moroney designs is improper.

The actual claim limitation at issue is "low-pass filtering said gray-scale component under control of at least said segmentation result to produce an image mask." Kikuchi does not show low-pass filtering of a gray-scale component, nor producing an image mask. None of these limitations are shown in Kikuchi, either expressly or impliedly. Kikuchi cannot low-pass filter a gray-scale component to produce a segmentation result because, as recognized by the Office Action, Kikuchi does not employ a low-pass filter. Kikuchi cannot produce an image mask in any manner because it simply does not employ an image mask, also recognized by the Office Action.

The Office Action divides the limitation "low-pass filtering said gray-scale component under control of at least said segmentation result to produce an image mask" and chops it into pieces, relying on words employed in the cited references in order to disparage the limitation. Applicant submits that the attempt to combine Moroney and Kikuchi to reject this limitation provides too much emphasis on the reference teachings and too little credit to the efforts and claim language of the Applicant. In actuality, neither Moroney nor Kikuchi, show "low-pass filtering said gray-scale component under control of at least said segmentation result to produce an image mask," nor do the combination thereof, if the references could be combined in the manner suggested, show a device having this limitation. In short, the different limitations presented are not satisfied by the teachings of Moroney in combination with Kikuchi. Claim 1 is therefore not obvious in view of Moroney and Kikuchi, and all claims dependent on claim 1 are allowable as being dependent from the allowable base claim.

Further, there is no motivation to combine the image mask generation techniques of Moroney with the morphological operations for obtaining segment data aspects recited in Bloomberg and the filtering process control aspects recited in Kikuchi.

The motivation to combine is alleged to be "because it would have been obvious to modify Moroney with the teachings of Bloomberg and Kikuchi by morphologically filtering an image to obtain segmentation result and then using the segmentation result to control a subsequent filtering operation." (Office Action, p. 4). This alleged motivation reads more into any reference than is present in the references themselves, and merely states a broad end result rather than a motivation to combine the teachings of the Moroney, Bloomberg and Kikuchi references. In reality, there is no suggestion in Kikuchi to use morphological functions or a low-pass filter to produce an image mask, nor any suggestion in Bloomberg to use a segmentation result to control gray-scale filtering of a digital image or produce an image mask, nor any motivation to restrict Moroney to greyscale operations, or low pass filter only a greyscale component, or control low-pass filtering using a segmentation result, or employ morphological filtering operations in Moroney

Applicants thus further dispute the combination of Moroney, Bloomberg and Kikuchi in the manner suggested in the Office Action. Applicants respectfully submit that no motivation to combine the references in the manner suggested is presented within the references themselves. The statement in the Office Action regarding "combining" these references "because they all have aspects that are from the field of endeavor of image filtering" does not demonstrate any motivation to combine the references explicit or implied within the three references themselves, but instead takes the broadest, most general field of the references and alleges that somehow Moroney, Bloomberg, and Kikuchi could be readily applied to one another. Applicants contend that simply no motivation exists to employ the filter control signal aspect of Kikuchi in Bloomberg and/or Moroney. Certainly no motivation to employ the segment data resulting from applying morphological operations to detect highlighted regions on a document system of Bloomberg is included in Moroney and/or Kikuchi. And no motivation to use the low pass filtering or image mask development of Moroney is present in either Bloomberg or Kikuchi. Finally, none of the cited references specifically discuss greyscale filtering specifically.

The Federal Circuit has held that obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some

teaching, suggestion or incentive supporting the combination. *ACS Hospital System, Inc. v. Montefiore Hospital*, 732 F.2d 1572 (Fed. Cir. 1984). Without some showing in the prior art that suggests in some way a combination in order to arrive at the claimed invention, it is impermissible to use the Applicants' teaching to search references for the claimed elements and combine them as claimed. *In Re Vaeck*, 947 F.2d 488 (Fed. Cir. 1991); *In Re Laskowski*, 871 F.2d 115, 117 (Fed. Cir. 1989); *see also, Ex Parte Lange*, 72 U.S.P.Q. 90, 91 (C.C.P.A. 1947) ("It seems to us that the Examiner is using appellant's disclosure for the suggestion of the combination since there is no suggestion in any of the patents for their combination in the manner claimed by Applicant."); *In re Leonor*, 158 U.S.P.Q. 20, 21 (C.C.P.A. 1968) (the issue is "whether teachings of prior art would, of themselves, and without benefit of applicant's disclosure, suggest [a process] which would make claimed invention obvious...") (emphasis in original). As noted, the Kikuchi reference does not suggest combining the use of morphological operations to detect highlighted regions on a document aspect of Bloomberg to produce the unique method claimed in Applicants' independent claim 1.

Applicants respectfully submit that the Office Action uses hindsight in rejecting the claims herein. It is only through hindsight, after seeing Applicants' disclosure, that it would be considered possible to create the digital image processing method as claimed by the Applicants. With regard to the use of hindsight, or the use of an Applicant's teaching to combine references, the courts have overwhelmingly condemned such combinations and have upheld the validity of patents or claims of patents in which such hindsight was employed to combine the references. *W.L. Gore Associates, Inc. v. Garlock, Inc.*, 220 U.S.P.Q. 303, 313 (Fed. Cir. 1983), (condemning the "insidious effect of a hindsight syndrome wherein that which only the inventor taught is used against its teacher"); *In re Fine*, 837 F.2d 1044, 1051 (Fed. Cir. 1988) ("One cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention.") Applicants respectfully submit that combination of aspects of the Moroney reference with the Bloomberg and Kikuchi designs is merely a hindsight reconstruction of the invention using Applicants' disclosure and attempting to use Applicants' claims as a guide. Such hindsight reconstruction of the claimed system is inappropriate and thus rejection of the independent claim 1 for this reason is improper.

Based upon the totality of the foregoing, Applicants respectfully submit that claim 1 is allowable over the references of record, and that all claims dependent from claim 1 are allowable as they depend from an allowable base claim.

Claims 11 and 18

The Office Action rejected independent claims 11 and 18 based on the three references cited above. For the reasons generally presented above, Applicant contends that these claims were not obvious in view of the three cited references. Applicant has, however, in the interests of obtaining patent protection for the inventive design, amended claims 11 and 18 to include the aspect of a chromatic component and the use thereof to produce the output image. The concept of using a chromatic component to control the global strength of the tone correction is not shown or disclosed in Moroney, Bloomberg or Kikuchi either alone or in any combination of the references cited. Applicants therefore submit that claims 11 and 18, as amended, and claims dependent therefrom, are allowable over the cited references.

Claim 5

The Office Action has taken Official Notice in regards to claim 5. Specifically, p. 4 of the Office Action alleges "that in digital image processing low-pass filtering by definition operates on an area of pixels defined by its kernel."

Regarding Official Notice, the MPEP states "Official notice unsupported by documentary evidence should only be taken by the examiner where the facts asserted to be well-known, or to be common knowledge in the art are capable of instant and unquestionable demonstration as being well-known " MPEP 2144.03. Further,

> It would not be appropriate for the examiner to take official notice of facts without citing a prior art reference where the facts

> asserted to be well known are not capable of instant and unquestionable demonstration as being well-known. For example, assertions of technical facts in the areas of esoteric technology or specific knowledge of the prior art must always be supported by citation to some reference work recognized as standard in the pertinent art. *In re Ahlert*, 424 F.2d at 1091, 165 USPQ at 420-21. See also *In re Grose*, 592 F.2d 1161, 1167-68, 201 USPQ 57, 63 (CCPA 1979) ("[W]hen the PTO seeks to rely upon a chemical theory, in establishing a prima facie case of obviousness, it must provide evidentiary support for the existence and meaning of that theory."); *In re Eynde,* 480 F.2d 1364, 1370, 178 USPQ 470, 474 (CCPA 1973) ("[W]e reject the notion that judicial or administrative notice may be taken of the state of the art. The facts constituting the state of the art are normally subject to the possibility of rational disagreement among reasonable men and are not amenable to the taking of such notice.").

Id.; emphasis in original.

Official Notice in this instance relies on purported general knowledge rather than a cited reference. None of the references presented demonstrate such a "definition" relating to digital image low pass filtering, in particular within the enhancing of tone reproduction context described and claimed. Thus the statement of Official Notice of the purported definition at p. 4 of the Office Action relies on alleged knowledge of one skilled in the art at the time of the invention. In accordance with 37 C.F.R. § 1.104 (d)(2) and to preserve Applicant's argument on appeal, Applicant requests that the Examiner provide an affidavit that supports the rejection of the claims based on the official notice, common knowledge, or personal knowledge of the Examiner, or provide a reference demonstrating the purported common knowledge. See *In re Lee*, 277 F.3d 1338, 1344-45, 61 U.S.P.Q.2d 1430, 1435 (Fed. Cir. 2002) (finding that reliance on "common knowledge and common sense" did not fulfill the PTO's obligation to cite references to support its conclusions, as PTO must document its reasoning's on the record to allow accountability and effective appellate

review); see also, *In re Zurko*, 59 USPQ2d 1693 (Fed. Cir. 2001) ("This assessment of basic knowledge and common sense was not based on any evidence in the record and, therefore, lacks substantial evidence support. ... With respect to core factual findings in a determination of patentability, however, the Board cannot simply reach conclusions based on its own understanding or experience -- or on its assessment of what would be basic knowledge or common sense"); Manual of Patent Examining Procedure 2144.03 ("If applicant adequately traverses [an] assertion of official notice, the examiner must provide documentary evidence in the next office action if the rejection is to be maintained."). Should the Examiner continue to take issue with claim 5, or any other claims on this basis, Applicants request that the Examiner produce a reference showing "that in digital image processing low-pass filtering by definition operates on an area of pixels defined by its kernel" or otherwise in accordance with the express terminology of the claim or claims, or an affidavit in support of the rejection.

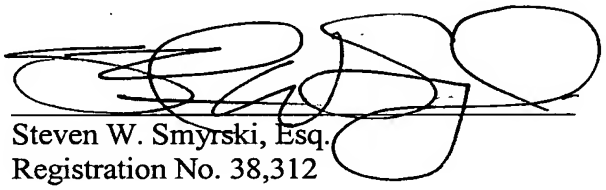
Accordingly, it is respectfully submitted that all pending claims fully comply with 35 U.S.C. § 103

CONCLUSION

In view of the foregoing, it is respectfully submitted that all claims of the present application are in condition for allowance. Reexamination and reconsideration of all of the claims are respectfully requested, and allowance of all the claims at an early date is solicited.

Should it be determined for any reason an insufficient fee has been paid, please charge any insufficiency to ensure consideration and allowance of this application to Deposit Account 08-2025.

Respectfully submitted,



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